AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A linear guide apparatus comprising:

a guide rail including an axially elongating rolling element rolling groove in each of sides thereof, and extended in an axial direction;

a slider including rolling element rolling grooves respectively opposed to the rolling element rolling grooves of the guide rail, and straddling the guide rail to be relatively movable in the axial direction via a number of cylindrical rollers, the rollers serving as rolling elements interposed between the opposed rolling element rolling grooves, the slider comprising: a slider body having a rolling element path passing through the body in the axial direction; and a pair of end caps respectively having curved direction change paths through which a pair of the rolling element rolling grooves communicates with the rolling element path, the end caps being respectively fixed to axial end faces of the slider body; a guide groove guiding the arm portions of the separators in a circulation direction of the cylindrical rollers when the cylindrical rollers circulate through the pair of the rolling element rolling grooves, the direction change paths, and the rolling element path; and

separators each having: a separator body interposed between adjacent the cylindrical rollers; and an arm portion integrally formed on the separator body and facing at least one of axial end faces of the cylindrical rollers,

wherein a width of the guide groove is larger than a width of each of the arm portions, the width of the guide groove in a region of each of the direction change paths is larger than the width of the guide groove in a region where the cylindrical rollers linearly move, and end portions of each of the arm portions are chamfered, the end portions being directed in the circulation direction of the cylindrical rollers.

2. (original): A linear guide apparatus according to claim 1, wherein, at a position where the linear motion region is connected to one of the direction change regions, a shape of an inner wall face of an inner side of the guide groove in the direction change path starts to be changed.

3. (original): A linear guide apparatus according to claim 1, wherein the width of the guide groove is made larger at a position being on a side of the linear motion region with respect to a position where the linear motion region is connected to one of the direction change regions,.

4. (original): A linear guide apparatus according to claim 1, wherein the arm portions is formed a band-like shape along the circulation direction of the cylindrical rollers.

5. (original): A linear guide apparatus according to claim 1, wherein the arm portion is couplable to the axial end faces of the cylindrical roller.

6. (original): A linear guide apparatus comprising:

a guide rail including an axially elongating rolling element rolling groove in each of sides thereof, and extended in an axial direction;

a slider including rolling element rolling grooves respectively opposed to the rolling element rolling grooves of the guide rail, and straddling the guide rail to be relatively movable in the axial direction via a number of cylindrical rollers, the rollers serving as rolling elements

interposed between the opposed rolling element rolling grooves, the slider comprising: a slider body having a rolling element path passing through the body in the axial direction; and a pair of end caps respectively having curved direction change paths through which a pair of the rolling element rolling grooves communicates with the rolling element path, the end caps being respectively fixed to axial end faces of the slider body; a guide groove guiding the arm portions of the separators in a circulation direction of the cylindrical rollers when the cylindrical rollers circulate through the pair of the rolling element rolling grooves, the direction change paths, and the rolling element path; and

separators each having: a separator body interposed between adjacent the cylindrical rollers; and an arm portion integrally formed on the separator body and facing at least one of axial end faces of the cylindrical rollers,

wherein an escape portion is disposed in an R-arcuate inner peripheral wall of the guide groove in each of the direction change paths, the escape portion escaping toward an inner side of the direction change path.

7. (original): A linear guide apparatus according to claim 6, wherein the escape portion has a single R-arcuate shape which is larger in radius of curvature than the R-arcuate shape of the inner peripheral wall of the guide groove in the direction change path without the escape portion.

8. (original): A linear guide apparatus according to claim 6, wherein a center of curvature of the escape portion is positioned on an extended line of a line passing a center of curvature of the R-arcuate shape of the inner peripheral wall of the guide groove and

substantially equally dividing the R-arcuate shape, whereby the escape portion is formed into an R-arcuate shape of 90 degree consisting of subportions of 45 degree being respectively on both sides of the extended line.

9. (original): A linear guide apparatus according to claim 6, wherein the escape portion is connected by an arc and/or a straight line to the inner peripheral wall of the guide groove disposed on both sides of the escape portion in a circumferential direction.

10. (original): A linear guide apparatus comprising:

a guide rail including an axially elongating rolling element rolling groove in each of sides thereof; and

a slider including rolling element rolling grooves respectively opposed to the rolling element rolling grooves of the guide rail, and straddling the guide rail via a number of rollers to be relatively movable in the axial direction, the rollers serving as rolling elements interposed between the opposed rolling element rolling grooves,

the slider further including: a slider body having rolling element paths passed through the body in the axial direction; and a pair of end caps each having curved direction change paths through, spaces between the rolling element rolling grooves communicating with the rolling element paths, the end caps being respectively fixed to axial end faces of the slider body,

the rolling element rolling grooves being disposed as upper and lower rolling element rolling groove pairs on each of the sides to be four pairs in total, the rolling element paths being disposed as upper and lower rolling element paths on each of the sides to be four paths in total,

wherein each of the end caps having: an end cap body; a first return guide fitted to a side of the end cap body in the axial direction, the side facing corresponding one of the end faces of the slider body; and a second return guide fitted to the first return guide in the axial direction,

the first return guide and the second return guide are substantially perpendicularly arranged to form a generally rectangular shape in which a raceway groove for the rollers is disposed on a short side as seen in the axial direction, the first return guide and the end cap body form one of: a direction change path through which the upper rolling element path communicates with the lower pair of rolling element rolling grooves; and a direction change path through which the lower rolling element path communicates with the upper pair of rolling element rolling grooves, and the second return guide, the end cap body, and the first return guide form another one of the direction change paths.

11. (original): A linear guide apparatus according to claim 10, wherein a roller raceway groove on an inner peripheral side of the direction change path formed by the first return guide and the end cap body is disposed in the first return guide, a roller raceway groove on an outer peripheral side of the direction change path is disposed in the end cap body,

a roller raceway groove on an inner peripheral side of the direction change path formed by the second return guide, the end cap body, and the first return guide is disposed in the second return guide, and a roller raceway groove on an outer peripheral side of the direction change path is disposed in the end cap body and the first return guide.

12. (original): A linear guide apparatus according to claim 10, wherein the linear guide apparatus further comprises separators each having: a separator body interposed between

adjacent the rollers; and an arm portion facing at least one of axial end faces of the rollers, the arm portion being integrated with the separator body,

a guide groove guides the arm portion of each of the separators along a circulation direction of the rollers is disposed, when the rollers circulate through the pair of rolling element rolling grooves, the direction change paths, and the rolling element path, and a support wall formed a part of the guide groove is disposed in the end cap body, the first return guide, and the second return guide.

13. (original): A linear guide apparatus according to claim 12, wherein an inner peripheral support wall of the guide groove disposed in the direction change path formed by the first return guide and the end cap body is disposed in the first return guide, an outer peripheral support wall of the guide groove is disposed in the end cap body,

an inner peripheral support wall of the guide groove disposed in the direction change path formed by the second return guide, the end cap body, and the first return guide is disposed in the second return guide, and an outer peripheral support wall of the guide groove is disposed in the end cap body and the first return guide.

14. (original): A linear guide apparatus according to claim 13, wherein a bottom face of the guide groove disposed in the direction change path formed by the first return guide and the end cap body is disposed on a side of the end cap body, and

a split plane between the first return guide and the end cap body is on an extended plane in a roller axis direction of the inner peripheral roller raceway groove on a side of the first return

guide, or an extended plane in the roller axis direction of the inner peripheral support wall face of the guide groove on a side of the first return guide.

15. (original): A linear guide apparatus according to claim 13, wherein a bottom face of the guide groove disposed in the direction change path formed by the first return guide and the end cap body is disposed on a side of the first return guide, and

a split plane between the first return guide and the end cap body is on an extended plane in a roller axis direction of the outer peripheral roller raceway groove on a side of the end cap body, or an extended plane in the roller axis direction of the outer peripheral support wall face of the guide groove on a side of the end cap body.

16. (original): A linear guide apparatus according to claim 14, wherein the split plane between the end cap body and the first return guide is on a positioning face and/or an engaging face of the first return guide with respect to the end cap body.

17. (original): A linear guide apparatus according to claim 12, wherein a bottom face of the guide groove disposed in the direction change path formed by the second return guide, the end cap body, and the first return guide is disposed on a side of the end cap body and the first return guide, and

a split plane between the second return guide and the first return guide is on an extended plane in the roller axis direction of the inner peripheral roller raceway groove on a side of the second return guide, or an extended plane in the roller axis direction of the inner peripheral support wall face of the guide groove on a side of the second return guide.

18. (original): A linear guide apparatus according to claim 12, wherein a bottom face of the guide groove disposed in the direction change path formed by the second return guide, the end cap body, and the first return guide is disposed on a side of the second return guide, and

a split plane between the second return guide and the first return guide is on an extended plane in the roller axis direction of the outer peripheral roller raceway groove of the first return guide, or an extended plane in the roller axis direction of the outer peripheral support wall face of the guide groove of the first return guide.

19. (original): A linear guide apparatus according to claim 17, wherein the split plane between the second return guide and the first return guide is on a positioning face and/or an engaging face of the second return guide with respect to the first return guide.

20. (new): A linear guide apparatus comprising: a guide rail including an axially elongating rolling element rolling groove in each of sides thereof, and extended in an axial direction;

a slider including rolling element rolling grooves respectively opposed to the rolling element rolling grooves of the guide rail, and straddling the guide rail to be relatively movable in the axial direction via a number of cylindrical rollers, the rollers serving as rolling elements interposed between the opposed rolling element rolling grooves, the slider comprising: a slider body having a rolling element path passing through the body in the axial direction; and a pair of end caps respectively having curved direction change paths through which a pair of the rolling element rolling grooves communicates with the rolling element path, the end caps being respectively fixed to axial end faces of the slider body; a guide groove guiding the arm portions

of the separators in a circulation direction of the cylindrical rollers when the cylindrical rollers circulate through the pair of the rolling element rolling grooves, the direction change paths, and the rolling element path; and

separators each having: a separator body interposed between adjacent the cylindrical rollers; and an arm portion integrally formed on the separator body and facing at least one of axial end faces of the cylindrical rollers,

wherein a width of the guide groove is larger than a width of each of the arm portions, and the width of the guide groove in a region of each of the direction change paths is larger than the width of the guide groove in a region where the cylindrical rollers linearly move.

21. (new): A linear guide apparatus according to claim 20, wherein, at a position where the linear motion region is connected to one the direction change regions, a shape of an inner wall face of an inner side of the guide groove in the direction change path starts to be changed.

22. (new): A linear guide apparatus according to claim 20, wherein the width of the guide groove is made larger at a position being on a side of the linear motion region with respect to a position where the linear motion region is connected to one of the direction change regions.

23. (new): A linear guide apparatus according to claim 20, wherein the arm portions is formed a band-like shape along the circulation direction of the cylindrical rollers.

24. (new): A linear guide apparatus according to claim 20, wherein the arm portion is couplable to the axial and faces of the cylindrical roller.